APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,196	07/03/2006	Randell L. Mills	08056.0015-00	6183

22852 7590 10/13/2010	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP	TSAI, CAROL S W	
901 NEW YORK AVENUE, NW		
WASHINGTON, DC 20001-4413	ART UNIT	PAPER NUMBER
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10/13/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>31 March 2010</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>18-51 and 55-70</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>18-51 and 55-70</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

3.   Claims 32-51 and 56-70 are rejected under 35 U.S.C. 101 because the claimed

invention is directed to non-statutory subject matter.

4.   Even when a claim applies a mathematical formula, for example, as part of a

seemingly patentable process, USPTO personnel must ensure that it does not in reality

"seek[] patent protection for that formula in the abstract." Diehr, 450 U.S. at 191, 209

USPQ at10. "Phenomena of nature, though just discovered, mental processes, abstract

intellectual concepts are not patentable, as they are the basic tools of scientific and

technological work." Benson, 409 U.S. at 67, 175 USPQ at 675. One may not patent a

process that comprises every "substantial practical application" of an abstract idea,

because such a patent "in practical effect would be a patent on the [abstract idea] itself."

Benson, 409 U.S. at 71-72, 175 USPQ at 676; cf. Diehr, 450 U.S. at 187, 209 USPQ at

8(stressing that the patent applicants in that case did "not seek to pre-empt the use of

[an] equation," but instead sought only to "foreclose from others the use of that equation

in conjunction with all of the other steps in their claimed process"). "To hold otherwise

would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection." Diehr, 450 U.S. at 192, 209 USPQ at 10. Thus, a claim that recites a computer that solely calculates a mathematical formula (see Benson) or a computer disk that solely stores a mathematical formula is not directed to the type of subject matter eligible for patent protection.

5.   Claims 32-51 and 56-70 recite a processor that solely computing mathematical formulas for bound atomic and atomic ionic electrons from physical solutions derived from Maxwell's equations are not directed to the type of subject matter eligible for patent protection.

Claim Rejections - 35 USC § 112

6.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7.   Regarding claim 33, the phrase "may be" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9.   Claims 18- 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Mills, "The Grand Unified Theory of Classical Quantum Mechanics," Int. Jo Hydrogen

Energy, Vol. 27, No. 5, (2002), pp. 565-590. (Internet Publication Date: Sept. 17. 2001)

and JP 2002008892 to Shimazu.

10.   With respect to claims 18, and 21-31, Mills discloses a system of computing and

rendering the nature of bound atomic and atomic ionic electrons from physical solutions

of the charge, mass, and current density functions of atoms and atomic ions, which

solutions are derived from Maxwell's equations using a constraint that the bound

electron(s) does not radiate under acceleration, comprising: solving the equations for

charge, mass, and current density functions of electron(s) in a selected atom or ion (see

1. Introduction listed on pages 565-566 and 10. Force balance equation, 11. Energy

calculation, and 12. Excited stated listed on pages 570-571), wherein the equations are

derived from Maxwelrs equations using a constraint that the bound electron(s) does not

radiate under acceleration (see Abstract, lines 1-7 and 8. Spin and orbital parameters

listed on page 569); wherein the physical, Maxwellian solutions of the charge, mass,

and current density functions of atoms and atomic ions comprises a solution of the

classical wave equation $[\nabla^2 - 1/v^2 * \partial^2/a^2]\ p(r, \theta, \phi, t) = 0$ (see equations 1-5, 7, 23-35, 37-

42, 95-100 shown on pages 566-576).

11.   Mills does not disclose expressly a processor for processing equations, but it is

considered inherent, because such element is known to be necessary in order that

equations can be performed.

12.   Mills does not disclose a display in communication with the processing means for displaying the current and charge density representation of the electron(s) of the selected atom or ion.

13.   Shimazu teaches a display in communication with the processing means for displaying the current and charge density representation of the electron(s) of the selected atom or ion (see Figs. 6-8).

14.   It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Mills's system to include a display in communication with the processing means for displaying the current and charge density representation of the electron(s) of the selected atom or ion, as taught by Shimazu, in order that computing and rendering results can be displayed for further analysis.

15.   As to claims 19 and 20, Mills also discloses the time, radial, and angular solutions of the wave equation are separable (see 2.classical quantum theory of the atom based on Maxwell's equations listed on page 566).

Claim Rejections - 35 USC § 102

16.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17.   Claim 55 is rejected under 35 U.S.C. 102(b) as being anticipated by Mills, "The

Grand Unified Theory of Classical Quantum Mechanics," Int. Jo Hydrogen Energy, Vol.

27, No. 5, (2002), pp. 565-590. (Internet Publication Date: Sept. 17. 2001).

18.   Mills discloses a method comprising the.steps of; a.) inputting electron functions

that are derived from Maxwell's equations using a constraint that the bound electron(s)

does not radiate under acceleration; b.) inputting a trial electron configuration; c.)

inputting the corresponding centrifugal, Coulombic, diamagnetic and paramagnetic

forces, d.) forming the force balance equation comprising the centrifugal force equal to

the sum of the Coulombic, diamagnetic and paramagnetic forces; e.) solving the force

balance equation for the electron radii; f.) calculating the energy of the electrons using

the radii and the corresponding electric and magnetic energies; g.) repeating Steps a-f

for all possible electron configurations, and h.) outputting the lowest energy

configuration and the corresponding electron radii for that configuration (see Abstract,

lines 1-7 and Sections 1-13 and 19-21), wherein output is rendered using electron

function given by at least one of the group comprising:

19. $\ell = 0$

20. $p(r,\theta,\Phi,t) = e/8\pi r^2 [\delta(r - r_n)] [Y_0^0 (\theta,\Phi) + Y_\ell^m (\theta,\Phi)]$

21. $\ell \neq 0$

22. $p(r,\theta,\Phi,t) = e/4\pi r^2 [\delta(r - r_n)] [Y_0^0 (\theta,\Phi) + Re \{ Y_\ell^m (\theta,\Phi) e^{iw_n t} \}]$

23.   *where $Y_\ell^m (\theta,\Phi)$ are the spherical harmonic function that spin about the z-axis*

with angular frequency ω_n with $Y_0^0 (\theta,\Phi)$ the constant function,

24. $Re\ \{Y_\ell^m(\theta,\Phi)\ e^{iW_n t}\} = p_\ell^m(\cos\theta)\ \cos(m\,\Phi + \omega_n t)$

25.   *where to keep the form of the spherical harmononic as a traveling wave about*

the z-axis, $\omega_n' = m\,\omega_n$ *(see equation 25.)*

Response to Arguments

26.   Applicant's arguments with respect to claims 18-51 and 55--70 have been

considered but are moot in view of the new ground(s) of rejection.

Contact Information

27.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to CAROL S. TSAI whose telephone number is (571)272-

2224. The examiner can normally be reached on M-F (7:30-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Andrew M. Schechter, can be reached on (571) 272-2302. The fax phone

number for the organization where this application or proceeding is assigned is (571)

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

October 10, 2010
Art Unit 2857

/Carol S Tsai/
Primary Examiner, Art Unit 2857